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09/748,056	12/22/2000	Sandip Sarkar	PA990540	4477

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Patents Department  
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EXAMINER

HA, DAC V

ART UNIT	PAPER NUMBER
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2634

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DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/748,056

Applicant(s)

SARKAR, SANDIP

Examiner

Dac V. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 10-31 and 33 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 32 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-3, 6, 14-16, 22-24, 26-28, 31** are rejected under 35 U.S.C. 102(b) as being anticipated by Iwakiri et al. (US 5,509,020) (hereinafter Iwakiri).

**Regarding claim 1**, Iwakiri teaches the following:

“supplying ... decision block” (Figure 1, combination of elements 3-8, 10);

“said rate decision ... desired condition” (Figure 3; Col. 6, line 13 to Col. 7, line 44); wherein Iwakiri implies “determining a plurality of frame energies” through the estimation of Eb/No. That is, each transmitted data rate has a corresponding energy associated with that particular data rate. The transmitted energy is also varied proportionally with the data rate. Therefore, estimating the Eb/No is a representation of “determining” “of frame energies”.

**Regarding claim 26**, see claim 1 above.

**Regarding claim 2**, Iwakiri further teaches the claimed subject matter “wherein ... Viterbi decoder” in Figure 1, element 1.

**Regarding claim 27**, see claim 2 above.

**Regarding claim 3**, Iwakiri further teaches the claimed subject matter “wherein ... eight rate” in Figure 2D.

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**Regarding claim 28**, see claim 3 above.

**Regarding claim 6**, Iwakiri further teaches the claimed subject matter “wherein ... threshold energy” in Col. 3, lines 18-36; Col. 6, line 35 to Col. 7, line 3.

**Regarding claim 31**, see claim 6 above.

**Regarding claim 14**, Iwakiri teaches the following:

“receiving a sequence of code symbol” (Figure 1, elements 1, 2);

“determining a plurality of CRC ... frame rates” (Figure 2D; Col. 5, lines 8-48);

“determining ... frame energies” (Figure 3; Col. 6, line 13 to Col. 7, line 44);

wherein Iwakiri implies “determining a plurality of frame energies” through the estimation of  $E_b/N_0$ . That is, each transmitted data rate has a corresponding energy associated with that particular data rate. The transmitted energy is also varied proportionally with the data rate. Therefore, estimating the  $E_b/N_0$  is a representation of “determining” “of frame energies”.

**Regarding claim 15**, Iwakiri further teaches the claimed subject matter “wherein ... Viterbi decoder” in Figure 1, element 1.

**Regarding claim 16**, Iwakiri further teaches the claimed subject matter “wherein ... eight rate” in Figure 2D.

**Regarding claim 22**, Iwakiri teaches the following:

“receiving a sequence of code symbol” (Figure 1, elements 1, 2);

“determining a plurality of re-encoded ... frame rates” (Figure 1, element 5; Col. 5, lines 45-67);

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"determining ... frame energies" (Figure 3; Col. 6, line 13 to Col. 7, line 44); wherein Iwakiri implies "determining a plurality of frame energies" through the estimation of Eb/No. That is, each transmitted data rate has a corresponding energy associated with that particular data rate. The transmitted energy is also varied proportionally with the data rate. Therefore, estimating the Eb/No is a representation of "determining" "of frame energies".

**Regarding claim 23**, Iwakiri further teaches the claimed subject matter "wherein ... Viterbi decoder" in Figure 1, element 1.

**Regarding claim 24**, Iwakiri further teaches the claimed subject matter "wherein ... eighth rate" in Figure 2D.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4, 17, 25, 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri.

**Regarding claim 4**, the claimed subject matter "wherein ... eighth rate" would have been obvious to one skilled in the art in that, other rate could have been used without departing from the scope of Iwakiri; and that if no data is transmitted, the result should yield a zero rate.

**Regarding claim 17**, see claim 4 above.

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**Regarding claim 25**, see claim 4 above.

**Regarding claim 29**, see claim 1 above.

5. **Claims 5, 8, 30, 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri in view of Burshtein (US 6,560,744).

**Regarding claim 5**, Iwakiri teaches all the claimed subject matter in claim 5 as stated above, except for the claimed subject matter "wherein ... desired condition". Burshtein, in the same field of endeavor, teaches the utilization of a pilot energy is known in the art (Col. 10, line 58-60). Thus, the combination of the utilization of the pilot energy taught by Burshtein into Iwakiri would have been optional to one skilled in the art.

**Regarding claim 8**, similarly to claim 5 above (Burshtein, Col. 10, line 31 to Col. 11, line 58).

**Regarding claim 30**, see claim 5 above.

**Regarding claim 33**, see claim 8 above.

6. **Claims 10-13, 18-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri in view of Guey (US 6,480,556).

**Regarding claim 18**, Iwakiri teaches the following:

"receiving a sequence of code symbol" (Figure 1, elements 1, 2);

"determining a plurality of frame energies ... frame rates" "determining in final ... based on" "said plurality of frame energies" (Figure 3; Col. 6, line 13 to Col. 7, line 44); wherein Iwakiri implies "determining a plurality of frame energies" through the estimation of  $E_b/N_o$ . That is, each transmitted data rate has a corresponding energy associated

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with that particular data rate. The transmitted energy is also varied proportionally with the data rate. Therefore, estimating the  $E_b/N_0$  is a representation of "determining" "of frame energies".

Iwakiri differs from the claimed invention in that Iwakiri doesn't teach "determining a plurality of Yamamoto quality ... frame rates". However, such use of the Yamamoto quality in rate detection is known in the art (Guey, Col. 1, lines 58-65). Therefore, the claimed subject matter "determining a plurality of Yamamoto quality ... frame rates" and use that result for making final decision would have been optional to one skilled in the art.

**Regarding claim 19**, Iwakiri further teaches the claimed subject matter "wherein ... Viterbi decoder" in Figure 1, element 1.

**Regarding claim 20**, Iwakiri further teaches the claimed subject matter "wherein ... eighth rate" in Figure 2D.

**Regarding claim 21**, the claimed subject matter "wherein ... eighth rate" would have been obvious to one skilled in the art in that, other rate could have been used without departing from the scope of Iwakiri; and that if no data is transmitted, the result should yield a zero rate.

**Regarding claim 10**, Iwakiri teaches:

"receiving a sequence of code symbol" (Figure 1, elements 1, 2);

"determining a plurality of CRC ... frame rates" (Figure 2D; Col. 5, lines 8-48);

"determining a plurality of re-encoded ... frame rates" (Figure 1, element 5; Col. 5, lines 45-67);

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"determining ... frame energies" (Figure 3; Col. 6, line 13 to Col. 7, line 44); wherein Iwakiri implies "determining a plurality of frame energies" through the estimation of  $E_b/N_0$ . That is, each transmitted data rate has a corresponding energy associated with that particular data rate. The transmitted energy is also varied proportionally with the data rate. Therefore, estimating the  $E_b/N_0$  is a representation of "determining" "of frame energies".

Iwakiri differs from the claimed invention in that Iwakiri doesn't teach "determining a plurality of Yamamoto quality ... frame rates". However, such use of the Yamamoto quality in rate detection is known in the art (Guey, Col. 1, lines 58-65). Therefore, the claimed subject matter "determining a plurality of Yamamoto quality ... frame rates" and use that result for making final decision would have been optional to one skilled in the art.

**Regarding claim 11**, Iwakiri further teaches the claimed subject matter "wherein ... Viterbi decoder" in Figure 1, element 1.

**Regarding claim 12**, Iwakiri further teaches the claimed subject matter "wherein ... eighth rate" in Figure 2D.

**Regarding claim 13**, the claimed subject matter "wherein ... eighth rate" would have been obvious to one skilled in the art in that, other rate could have been used without departing from the scope of Iwakiri; and that if no data is transmitted, the result should yield a zero rate.

***Allowable Subject Matter***



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7. **Claims 7, 9, 32, 34** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

8. Applicant's arguments filed 06/09/04 have been fully considered but they are not persuasive.

Regarding applicant's argument on pages 8-9 toward §102 rejection, applicants has argued "Iwakiri discloses the  $E_b/N_0$  is the transmission energy per noise of bit unit (col. 6, lines 35-37), rather than a frame energy, as recited in the claim. Further,  $E_b/N_0$  is estimated "on the basis of the normalized symbol error rate ... and the path metric amount average value" (col. 6, line 66 through col. 7, line 2), rather than for a sequence of code symbols, as also recited in the claim. Thus, the  $E_b/N_0$  metric of Iwakiri is a generalized measure instead of a specific frame energy metric, where each frame energy corresponds to one of the tentative frame rates. Still further, the  $E_b/N_0$  metric ... meeting a desired condition, as recited in the claim."

In Iwakiri, it is clear that the purpose of Iwakiri's disclosure is to discriminate a data rate of every frame of the traffic channel on the reception side (col. 1, lines 57-59). Each frame of the traffic channel is transmitted using one of predetermined data rates (Fig. 2D). Through out Iwakiri, it is implicitly shown that all calculation/estimation is performed at the frame unit (col. 1, line 66; col. 4, line 67 to col. 5, line 1; col. 5, line 27; col. 6, lines 6-7). Even though Iwakiri estimates  $E_b/N_0$  including the basis of the normalized symbol error rate, the path metric amount average value, the  $E_b/N_0$

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nevertheless is an estimate representing the "frame energy". That is, the value of  $N_0$  is a constant assuming the noise is white (see An Introduction to Communication Systems by Allan R. Hambley, page 336 for reference, but not relied on). And based upon the estimated  $E_b/N_0$  (at frame unit), it is determined the corresponding data rate used for transmission in that frame. In particular, it is determined what data rate is used when "a desired condition" is met (col. 6, lines 13-16). Further, the  $E_b/N_0$  in Iwakiri, beside being utilized for setting the threshold, it is clear that it is utilized for determining the final rate of the frame (col. 6, lines 59-64, Fig. 3, element 25).

Regarding other applicant's argument, applicant has referred back to the argument relating to §102 rejection, thus, similar reason is applied.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 703-306-5536.

The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a horizontal line drawn underneath it.

Dac V. Ha  
Examiner  
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